MANAGING YOUR WOODLAND

HOW TO DO IT GUIDES

PACIFIC NORTHWEST REGION—STATE AND PRIVATE FORESTRY

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BLOWDOWN PROBLEMS AND SOLUTIONS

INTRODUCTION

The 1962 Columbus Day windstorm and other winter storms created problems for many forest owners. Windstorms are, of course, recurrent and some owners face this problem each year. This year, more timber is down and more woodland owners suffered losses than ever before. This bulletin describes some of the blowdown problems facing the woodland owner and suggests some solutions.

When trees blow down no set pattern is established. Large blocks of timber may blow over or scattered trees may be upset. Breakage may ruin many logs. A fire hazard is created. A breeding ground for insects is provided, and they may cause future damage worse than the wind effect. Down logs will rot--some faster than others. These, and other factors, influence what a landowner should do with his blowdown area.

FOR FURTHER INFORMATION CONSULT YOUR LOCAL FORESTER

MARKETING AND UTILIZING BLOWDOWN

A. Blowdown Should Be Salvaged Quickly.

The greatest returns from blowdown timber can be realized by salvaging it as quickly as possible. Owners who delay logging in hopes of getting higher stumpage or log prices risk losses from fire, insects, and decay. Resulting losses would probably offset any possible log price increases that might be gained by waiting.

B. Owners Should Not Expect Green Timber Stumpage Prices for Their Blowdown.

Loggers have found that it frequently costs 25% to 50% more to log blowdown than green trees. Falling and bucking is difficult, breaks and splits must be bucked out (Fig. 1), trees are scattered, and special care must be taken to protect green standing trees. Owners should, therefore, expect stumpage offers that are several dollars less per thousand board feet than would be offered for undamaged timber.

FIG. 1

BREAKAGE INCREASES LOGGING COSTS AND DECREASES LOG VALUES. THE MOST VALUABLE LOG ON THIS TREE HAS BEEN SHATTERED AND RUINED.

C. Determine the Most Profitable Markets for Blowdown.

Farm Foresters and County Extension Agents can provide advice on log markets and current prices. The market for pulpwood, poles, posts, and cordwood should also be explored. Some mills place length and diameter limits on logs. This makes logging more difficult or results in wasting small-sized logs. A clear understanding of acceptable log lengths and diameters should be reached in advance with the log buyer.

D. Other Considerations.

1. Woodland owners are sometimes tempted to clear-cut immature timber stands that contain light to moderate amounts of blowdown. This can be a costly decision to the owner when sufficient healthy standing trees remain to provide good future growth. The local Farm Forester should be consulted when it is questionable whether to clear-cut or salvage only the blowdown.

2. Agreements on stumpage sales and contract jobs should be in writing. A publication "Timber Sale Agreement Guides for the Woodland Manager" is available from Farm Foresters, County Agents, or the U.S. Forest Service, Division of State and Private Forestry, P.O. Box 3623, Portland 8, Oregon.

3. Investigate possibility of selling scattered blowdown to loggers with self-loading trucks.

4. Investigate possibility of selling small logs to a portable mill-owner or contracting with him to custom-saw lumber for your own use. A list of portable sawmills is available from your Farm Forester.

5. Consider doing your own logging if you have the experience and equipment (Fig. 2).

6. Salvage scattered or small blowdown material for firewood, fencing, and construction use.

7. Complete all Columbus Day blowdown removal and cleanup by May 1964.

FIG. 2

WOODLAND OWNER SALVAGING BLOWDOWN WITH LIGHT EQUIPMENT.

FIRE HAZARD AND PROTECTION

The most obvious and immediate problem is the fire hazard. Large amounts of fuel exist from down trees and branches snapped off by the wind. This fuel will be dry and flammable by July or August. The potential for fires to get large and dangerous is present. Stopping a fire in blowdown is difficult. Fire prevention is, as always, the best measure.

A. Prevention.

Campaigns by forest protection organizations for fire prevention will be in full swing during fire season. The landowner can help by cooperating with the local Fire Wardens and by doing some of the following:

1. Signing - Signs, such as those pictured here (Fig. 3), are effective in pointing out danger areas. Post on roads, trails, fence lines, and other strategic places near blowdown areas.

Keep Green Associations or your local Fire Warden have these signs available without charge.

FIG. 3

SIGNS CAN BE USED TO POINT OUT FIRE DANGER IN BLOWDOWN AREAS.

2. Precautions - Strict observance of State fire regulations while operating in the blowdown area is necessary. Fires which may spread to the blowdown area from adjacent fields or other areas must also be prevented.

B. Fire Trailing.

Hazardous areas should be surrounded by fire trails. By construction of such fire control lines and providing access for men and machinery, quicker control of any fire may be expected. Development of fire trails before logging is recommended.

Fire trails should be at least the width of a dozer blade and cleared to mineral soil. On steep ground where tractors cannot operate, a hand trail 3 feet wide is desirable.

Taking advantage of natural openings, roads, rock areas, and logging skid trails can reduce the amount of construction.

Roads should be kept open (Fig. 4). Logs must be bucked out and stream crossings and drainages kept passable. Fire equipment must be able to get to the area.

FIG. 4

OPEN ALL ROADS INTO HAZARDOUS AREAS.

C. Burning.

Logging and blowdown slash should be disposed of by burning, preferably in the spring or fall. A permit is required during the fire season and may be obtained from the local Fire Warden or Rural Fire District Chief. Burning may be done in two ways--piling and burning or broadcast burning. Where green trees remain in an area, slash piling is necessary. A waterproof cover over the center of the pile will keep it dry for wet weather burning. Broadcast burning disposes of the slash where it lies. Adequate firelines are necessary.

If slash disposal over the entire area is not possible or must be delayed, consider fireproofing a strip on each side of the roads in the area. This will give some measure of protection.

Burning plans should be discussed with the local Warden. He will provide advice and at times is available to lend assistance. He will require adequate tools and other precautions.

BEETLES AND DAMAGE

Beetles occur in all sizes, shapes, and colors. Many of them eat wood. Beetles can kill green trees or ruin blowdown logs. They are something to be concerned about.

A. Bark Beetles.

Recently felled or blowdown Douglas-fir logs are almost always invaded by the Douglas-fir beetle. This beetle does not penetrate into the wood but lives and reproduces just beneath the bark. The emerging beetles, if present in sufficient numbers, will attack and kill green trees.

1. Damage - Bark beetles may build up in such large numbers that they will kill many green trees. The period after a major blowdown is especially bad since down logs are available as breeding places. A season later, the beetles emerge and attack green trees adjacent or some distance away. Beetle-infested logs are also more susceptible to rot and stain damage.

2. Life Cycle - The adult female beetle (Fig. 5) bores through the bark and excavates a tunnel $\frac{1}{4}$ inch wide and up to 30 inches long between the wood and bark.

Eggs are laid alternately in groups along the sides of this tunnel. These eggs hatch and the larvae eat out at right angles to the main gallery. The larvae then form pupae and after a period of time develop into adult beetles. The adult beetle normally emerges in the spring to repeat this life cycle in recently felled logs, windthrown timber, or weakened trees.

FIG. 5

MAGNIFIED DOUGLAS-FIR BARK BEETLE. ACTUAL LENGTH OF THIS BEETLE IS 1/8 INCH.

FIG. 6

DOUGLAS-FIR BEETLES BURROW EGG GALLERIES BETWEEN THE BARK AND THE WOOD. EGGS ARE DEPOSITED AND HATCH INTO LARVAE WHICH BURROW AT RIGHT ANGLES MAKING THIS TYPICAL PATTERN.

3. How to Recognize - First evidence of Douglas-fir bark beetle attack is the reddish boring dust. Little piles of this dust are seen in bark crevices on down logs. By chopping off a piece of bark, the distinctive bark beetle egg gallery may be seen (Fig. 6).

When green trees are invaded, the first sign of attack is fading of the needles. When the needles turn red the tree is already dead. Trees are usually killed in small groups.

4. Control - The only economical control method is salvage logging of infested trees and windfalls. Chemical sprays are costly and impractical.

Blowdown trees from the Columbus Day storm must be out of the woods prior to May 1964 to help prevent additional damage. All timber owners should attempt to meet this goal. Bark beetles will emerge from blowdown logs and attack green trees next spring. They pay no attention to boundary lines. Your neighbor's beetles may attack your trees. Standing trees killed by beetles should also be salvaged as soon as possible.

B. Other Beetles.

Other beetles, such as wood borers and ambrosia beetles, may also cause considerable damage. These beetles generally attack only the dead trees or down logs. Their borings may cull or degrade logs and cause great losses in value.

1. Ambrosia Beetles - These small beetles select dying and freshly felled trees, or unseasoned, moist wood for attack. Small round tunnels are bored directly into the sapwood and heartwood. A fine, light-colored powder comes from these borings.

The holes, surrounded with a dark stain, are a serious defect in lumber (Fig. 7).

Control is largely a matter of prevention. Blowdown or freshly cut timber should be logged without delay. Logs should be promptly sawn, or stored in water. Green lumber should be piled so it will dry rapidly.

2. Wood Borers - There are many types of wood boring beetles. They vary in size and shape and may cause extensive damage to dead timber (Fig. 8). Trees that might be sold as poles are often ruined for this purpose by wood borers. Borer damage consisting of pencil-size holes can be expected in blowdown.

Early logging and water storage are advised to reduce borer damage.

FIG. 7

TYPICAL "SHOT HOLES" MADE BY THE AMBROSIA BEETLE. THIS BEETLE ATTACKS DEAD TREES AND LOGS.

FIG. 8

MAGNIFIED LARVA OF THE WOOD BORER. ACTUAL LENGTH IS ABOUT 1 INCH.

LOG DETERIORATION

Resistance to decay varies with tree species. However, other factors also affect the rate of decay. For example, little decay occurs during cold winter weather but warm spring and summer temperatures stimulate the development of wood-staining and wood-decaying fungi. Uprooted trees will remain green and decay-resistant longer than broken-off trees. Bark beetles and other boring insects increase the chance of early decay by carrying fungi spores into the wood.

The sooner blowdown is salvaged the less chance there will be for decay loss. Early salvaging is particularly urgent for less decay resistant species such as alder and hemlock.

A. Rate of Decay in Hardwoods.

Hardwoods, such as alder, maple, and cottonwood decay rapidly. They should be salvaged before the end of the first summer.

B. Rate of Decay of Conifers.

1. Sapwood - In all coniferous species, sapwood is much more susceptible to decay and stain than heartwood (Fig. 9). Stain and early stages of sapwood decay may occur by the end of the first summer after blowdown. By the end of the second summer, sapwood may be too decayed to make lumber. Since small trees contain a higher ratio of sapwood than large trees, they should be salvaged as quickly as possible. Most log buyers are reluctant to purchase small logs with decayed sapwood.

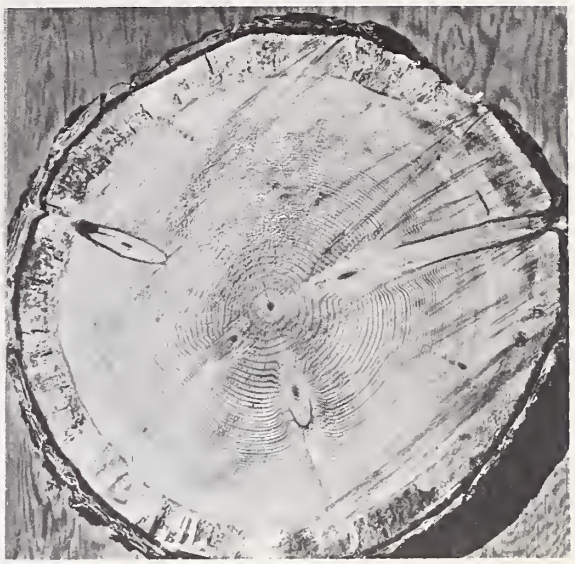

FIG. 9

DOUGLAS-FIR SAPWOOD USUALLY STARTS TO DECAY DURING THE SECOND YEAR AFTER BLOWDOWN.

2. Heartwood - The decay-resistance of coniferous heartwood varies greatly between species. The age of the tree also has an influence. Large diameter Douglas-fir may have sound heartwood for many years after the sapwood decays. Heartwood of small Douglas-fir will usually start to deteriorate in about four years (Fig. 10). The less durable heartwood of hemlock, grand fir, and white fir usually starts to decay in two or three years. Comparative decay rates for heartwood of coniferous species are shown below, with the least resistant species listed first:

Hemlock
Grand and white firs
Spruce
Second-growth Douglas-fir
Pines
Old-growth Douglas-fir
Cedar

FIG. 10

DOUGLAS-FIR HEARTWOOD IS MORE DURABLE THAN THE SAPWOOD. IT WILL ORDINARILY RESIST DECAY UNTIL THE FOURTH YEAR.

C. Decay in Wind-Damaged Standing Timber.

Windstorm damage may have a serious delayed-action effect on the trees. Many trees will eventually start to decay where the wood is exposed. Trees with broken tops, large broken limbs, and bark scraped off by falling trees are particularly susceptible. Leaning trees may have their root systems weakened so they will topple over during future windstorms. Whether these trees should be salvaged with the blowdown or cut at some future date depends on current log markets and the circumstances of the owner. If, for example, a forest owner has a large volume of blowdown, he may wish to defer the logging of damaged green trees until he completes the blowdown salvage. In other cases, he may find it more economical to log damaged green trees along with the salvage. It is a good idea to consult your Farm Forester for assistance before deciding which trees to cut.

D. Storage of Logs to Prevent Deterioration.

Log markets may be temporarily lacking due to local over-supplies of blowdown timber. The owner might find it necessary to protect his logs from deterioration until he can make satisfactory selling arrangements or have them custom sawn for home use. Logs deteriorate in two ways: decay and checks. Both can be controlled by storing the logs in water. Farm ponds, sloughs, and abandoned mill ponds offer possibilities (Fig. 11). Where ponds are not available, the logs can be preserved by use of a sprinkler system over the decked logs. The sprinkler must be operated continously and give complete water coverage. Intermittent wetting and drying of logs should be avoided because it makes conditions most favorable for decay and checking.

FIG. 11

MARKET CONDITIONS MAY FORCE TEMPORARY LOG STORAGE. POND STORAGE OF LOGS PREVENTS DECAY AND INSECT DAMAGE.

TAX CONSIDERATIONS IN BLOWDOWN LOSS

Losses of timber due to windstorm, fire, or other disaster may be a tax deductible item. However, to qualify, the owner must have actual capital investment in the timber.

This subject is more fully covered in Managing Your Woodland, How to Do It Guide #9 entitled "Losses of Timber from Fire, Windstorm, or Other Casualty". This pamphlet may be obtained from the Farm Forester or County Extension Agent.

TYPES OF ASSISTANCE

A. Farm Foresters.

Farm Foresters, employed by the State Forester in a cooperative program with the U.S. Forest Service, provide technical assistance to woodland owners without charge. With headquarters in most counties, they provide advice regarding management problems, such as debris cleanup, thinning, harvesting, marketing, and protection measures.

B. Emergency Assistance. (ACP F-4 Practice)

Special Agricultural Conservation Program (ACP) emergency funds are provided for a limited period. Landowners in counties designated as disaster areas because of the 1962 Columbus Day storm are eligible. Under this program a part of the cost of cleaning up storm-caused debris from woodlands and stream beds is reimbursed to the owner. Application is made at the county ASCS office. Eligibility for cost-sharing is determined by the Farm Forester.

C. Reforestation.

The regular Agricultural Conservation Program of the Agricultural Conservation and Stablization Service offers cost-sharing for replanting forest lands. This is also handled by the ASCS office and the Farm Forester in your county. Planting stock may be purchased from the State Forester. Farm Foresters and County Agents can provide further information and order blanks.

D. Loans Available to Woodland Owners.

1. Federal Land Bank - Loans can be made using merchantable volume in the woodland as security. Such loans are currently made at 5½% interest. The money can be used for any purpose.

2. Farmers Home Administration (FHA)

FHA loans can be made for specific purposes such as blowdown cleanup, reforestation, thinning, acquisition, etc. Basic requirements are:

a. Borrower must show that he cannot secure an adequate loan from another source.

b. Borrower must prove ability to repay the loan from the products of the land.

FHA loans can be made for some forestry purposes at an interest rate of 3%. Further details can be secured from the Farmers Home Administration office in your county.